

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the Application.

Listing of Claims:

50. (Currently Amended) A method of accessing data ~~in a data~~ stored in a data storage location in a data storage device, the method comprising:

(a) a server receiving from a client a request for accessing data related to a file, and wherein the server is in communication with a data storage device including data storage locations and the server managing locks on files having data stored in the data storage device;

(b) in response to the request for data, the server returning to the client metadata of the file including information specifying a data storage location for the file and granting to the client a lock on at least a portion of the file to be used when accessing data that is at least a portion of the file; and

(c) using the metadata of the file, the client producing at least one data access command for accessing the data storage location and sending the at least one data access command to the data storage device for accessing data stored on the data storage device that comprises at least a portion of the file for which the lock is granted.

51. Canceled

52. (Currently Amended) The method as claimed in claim ~~50~~⁵¹, wherein a plurality of clients share read-write access to the file, and the server grants respective read locks and write locks to the clients.

53. (Previously Presented) The method as claimed in claim 50, wherein the client writes data to the data storage location, modifies the metadata from server in accordance with the data storage location to which the data is written, and sends the modified metadata to the server.

54. (Previously Presented) The method as claimed in claim 53, wherein the client sends the modified metadata to the server after the client writes the data to the data storage location.

55. (Previously Presented) The method as claimed in claim 50, wherein the client has a lock manager that responds to a request from an application process of the client for access to the file by granting to the application process a local file lock on at least a portion of the file, and then sending to the server the request for access to the file.

56. (Previously Presented) The method as claimed in claim 55, wherein the method includes dynamically linking application programs of the client with input-output related operating system routines of the client, the input-output related operating system routines intercepting file access calls from client application processes to send file access requests to the server to obtain from the server locks upon at least a portion of each of the files, to obtain metadata for producing data access commands for accessing data storage locations, to produce the data access commands from the metadata, and to send the data access commands to the server in order to access the data storage locations.

57. (Previously Presented) The method as claimed in claim 56, wherein the data access command is a write command for a write operation upon at least a portion of the file, and wherein the method includes the client writing the data to the data storage locations, modifying the metadata from the server in accordance with the write operation upon at least a portion of the file, and sending the modified metadata to the server.

58. (Previously Presented) The method as claimed in claim 57, wherein the client sends the modified metadata to the server after the client writes the data to the data storage location.

59. (Previously Presented) The method as claimed in claim 58, wherein the client performs asynchronous write operations upon the data storage locations, and wherein the client

sends the modified metadata to the server in response to a commit request from an application process of the client.

60. (Previously Presented) The method as claimed in claim 59, wherein the client performs asynchronous write operations upon the data storage locations, and wherein the client sends the modified metadata to the server when the client requests the server to close the file.

61. (Currently Amended) A program product containing a program for a server and a client, wherein the server and the client are in communication with at least one data storage device including data storage locations for storing a file ~~system~~, wherein the program is executable for responding to each request for data ~~related to~~ that comprises at least a portion of a file stored in the at least one data storage device by:

enabling the server to respond to a request for data from a client for access to ~~data-related to a~~ that comprises at least a portion of the file, by returning to the client metadata of the file including information specifying a data storage location for the file, and wherein the server is in communication with a data storage device and the server is further enabled by the program for managing locks on files having data stored in the data storage device and for granting a lock on at least a portion of the file to be used by the client when accessing data that comprises at least a portion of the file; and

enabling the client to use the metadata of the file to produce at least one data access command for accessing the data storage location and sending the at least one data access command to the data storage device for accessing data stored on the data storage device that comprises at least a portion of the file for which the lock is granted.

62. Canceled

63. (Currently Amended) The program product as claimed in claim ~~61~~⁶², wherein a plurality of clients share read-write access to the file, and the server grants respective read locks and write locks to the clients.

Applicant: Uresh K. Vahalia, *et al.*
U.S.S.N.: 10/032,161
Filing Date: December 21, 2001
EMC Docket No.: EMC-98-092CON1

64. (Previously Presented) The program product as claimed in claim 61, wherein the client writes data to the data storage location, modifies the metadata from the server in accordance with the data storage location to which the data is written, and sends the modified metadata to the server.

65. (Previously Presented) The program product as claimed in claim 64, wherein the client sends the modified metadata to the server after the client writes the data to the data storage location.

66. Canceled.